WHAT IS CLAIMED IS:

1. A method of fabricating a thin film circuit integrated with thick film resistors, by first creating multiple thick film resistors on a substrate (1), and then creating a thin film circuit portion over the substrate (1) to be interconnected with the thick film resistors.

2. The method of fabricating a thin film circuit as claimed in claim 1, wherein the fabrication process of integrating thick film resistor components with a thin film circuit portion on a printed circuit board involves a first phase process of forming the thick film resistors comprising the acts of:

forming conductive electrodes (11) for thick film resistors, wherein pairs of electrodes (11) are formed at predetermined positions over a substrate (1) and each electrode pair acts as the end terminals of the thick film resistors;

forming a resistive coating (12) for thick film resistors in between the electrode pairs to finish a thick film resistor;

forming a passivation layer (13) over the thick film resistors, where a low temperature process is used to form a dielectric layer to protect the thick film resistors.

3. The method of fabricating a thin film circuit as claimed in claim 1, wherein the fabrication process of integrating the thick film resistor components with a thin film circuit portion on a printed circuit board further involves a second phase process to form a thin film circuit portion, comprising the acts of:

forming a titanium layer (21) and a copper layer (22) in that order over the substrate (1) with the thick film resistors;

attaching a dry film (23) over the copper layer (22);

exposing and developing, wherein the dry film (23) is placed over the circuit portion as a photomask (24) to shield against exposure light, and a circuit pattern appears on the dry film (23) after developing;

electroplating the thin film circuit for interconnections to form a copper plated circuit (25);

removing remnants of the dry film (23) and excess portions of the copper layer (22) and titanium layer (21) over the substrate (1) to finish the formation of the thin film circuit, using lithographic etching or other means.

4. The method of fabricating a thin film circuit as claimed in claim 2, wherein the fabrication process of integrating the thick film resistor components with a thin film circuit portion on a printed circuit board further involves a second phase process to form a thin film circuit portion, comprising the acts of:

forming a titanium layer (21) and a copper layer (22) in that order over the substrate (1) with the thick film resistors;

attaching a dry film (23) over the copper layer (22);

exposing and developing, wherein the dry film (23) is placed over the circuit portion as a photomask (24) to shield against exposure light, and a circuit pattern appears on the dry film (23) after developing;

electroplating the thin film circuit for interconnections to form a copper plated circuit (25);

removing remnants of the dry film (23) and excess portions of the copper layer (22) and titanium layer (21) over the substrate (1) to finish the formation of the thin film circuit, using lithographic etching or other means.

5. The method of fabricating a thin film circuit as claimed in claim 2,

wherein the formation of the conductive electrodes (11) and the resistive coating (12) for the thick film resistors, and the passivation layer (13) all require a high temperature sintering or baking process after finishing the coating.

6. The method of fabricating a thin film circuit as claimed in claim 2, wherein the formation of the conductive electrodes (11) and the resistive coating (12) for the thick film resistors, and the passivation layer (13) all use a screen printing technique.

7. The method of fabricating a thin film circuit as claimed in claim 2, wherein the coating of the electrode layer has a thickness of $25 \pm 5\mu m$.

8.The method of fabricating a thin film circuit as claimed in claim 2, wherein the coating of the passivation layer (13) has a thickness of $18 \pm 3\mu m$.

9. The method of fabricating a thin film circuit as claimed in claim 3, wherein the titanium layer (21) and the copper layer (22) are formed by a sputtering process.

10. The method of fabricating a thin film circuit as claimed in claim 4, wherein the titanium layer (21) and the copper layer (22) are formed by a sputtering process.

11. A printed circuit board integrating thick film resistor components and a thin film circuit portion thereon, comprising:

an insulating substrate (1), where multiple thick film resistors and thin film circuit portions are formed thereon, wherein each thick film resistor having:

pairs of electrodes (11) printed at predetermined positions on the substrate (1) to act as end terminals of the thick film resistors;

a resistive layer (12) being placed in between the pairs of electrodes (11) of

the thick film resistors; and

a passivation layer (13) being formed over the thick film resistor layer by a low temperature process;

whereby each thick film resistor on the substrate (1) is connectable to corresponding junctions on the thin film circuit to form an electrical circuit.

12. The printed circuit board as claimed in claim 11, wherein the resistive coating (12) in between each pair of electrodes (11) to form a thick film resistor is a rectangular block.

13. The printed circuit board as claimed in claim 11, wherein the resistive coating (12) in between each pair of electrodes (11) to form a thick film resistor is a continuous winding section.